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Safety of foodstuffs—Requirements

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The Executive Director
Uganda National Bureau of Standards
P.O. Box 6329
Kampala
Uganda
Tel: +256 417 333 250/1/2/3
Fax: +256 414 286 123
E-mail: info@unbs.go.ug
Web: www.unbs.go.ug

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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to co-ordinate the elaboration of standards and is

(a) a member of International Organisation for Standardisation (ISO) and

(b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and

(c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS TC 2/ SC 7 *Food Labelling and Food Hygiene*

Introduction

Food safety is everyone's business. Everyone has the right to safe, nutritious and sufficient food. Still today, almost one in ten people in the world fall ill after eating contaminated food. Food-borne illnesses are estimated to be responsible for 420 000 deaths annually– 125 000 of them in children under five - every year, with people in Africa and Southeast Asia suffering the most. (FAO, 2019)

Access to sufficient amounts of safe and nutritious food is key to sustaining life and promoting good health. Unsafe food containing harmful bacteria, viruses, parasites or chemical substances, causes more than 200 diseases – ranging from diarrhoea to cancers. An estimated 600 million – almost 1 in 10 people in the world – fall ill after eating contaminated food. Diarrhoeal diseases are the most common illnesses resulting from the consumption of contaminated food. Unsafe food creates a vicious cycle of disease and malnutrition, particularly affecting infants, young children, elderly and the sick (WHO, 2020).

Safe food is critical to the 2030 Agenda for Sustainable Development. Food safety has a significant impact on trade and the economy. Food trade represents approximately 10% of total international trade. Recent estimates indicate that unsafe food costs low- and middle-income economies around US$ 95 billion in lost productivity each year (World Bank, 2018).

This Uganda standard lays down general food safety requirements, according to which food must not be placed on the market if it is unsafe. Food business operators have an obligation to withdraw unsafe food from the market. In order to contribute to the protection of public health and to prevent differing interpretations, it is appropriate to establish harmonised safety criteria on the acceptability of food, in particular as regards the presence of certain pathogenic micro-organisms.

Microbiological criteria give guidance on the acceptability of foodstuffs and their manufacturing processes. Preventative actions, such as the application of Good Hygiene Practices (GHP) and Good Manufacturing Practices (GMP) and the Hazard Analysis Critical Control Point (HACCP) principles contribute to achieving food safety. Microbiological testing alone cannot guarantee the safety of a foodstuff tested, however the microbiological criteria provide objectives and reference points to assist food businesses and competent authorities in their activities to manage and monitor the safety of foodstuffs respectively.

This standard lists the maximum permissible levels of food borne microorganisms, among other food safety aspects, that pose a risk to human health.

Safety of foodstuffs – Requirements

1 Scope

This working draft Uganda Standard provides for general food safety requirements for foods intended for human consumption or further processing in particular where there is no specific product Uganda standard. It provides the basic requirements to be met for a food to be passed as safe.

2 Normative references

The following referenced documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC 967.26, *Salmonella in processed foods. Detection*

EAS 803, Nutrition labelling - Requirements

EAS 804*, Claims on food - Requirements*

EAS 805*, Use of nutrition and health claims - Requirements*

US 1659, Materials in contact with food - Requirements for packaging materials

US 217-7/EAS 217-7*, Methods for microbiological examination of foods - Part 7: Examination for Clostridium Botulinum and Clostridium Botulinum toxin*

US 28 EAS 39, *Code of practice for hygiene in the food and drink manufacturing industry*

US 45, General Standard for Food additives.

US 738, *General standard for contaminants and toxins in food and feed*

US CAC/GL 50, *General guidelines on sampling*

US CAC/MRL 2, *Maximum Residue Limits (MRLs) and Risk Management Recommendations (RMRs) for residues of veterinary drugs in foods*

US EAS 38, Labelling of pre-packaged foods - General requirements

US EAS 68-2-1*, Milk and milk products - Methods for microbiological examination - Part 2-1: Enumeration of coliforms ? Colony count technique at 30 Degrees Celsius*

US EAS 68-2-2*, Milk and milk products - Methods of microbiological examination ? Part 2-2: Enumeration of coliforms ? Most probable number technique at 30 Degrees Celsius*

US ISO 4831, *Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of coliforms - Most probable number technique*

US ISO 4832, *Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coliforms - Colony-count technique*

US ISO 11290-1, *Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of Listeria monocytogenes - Part 1: Detection method*

US ISO 11866-1, *Milk and milk products - Enumeration of presumptive Escherichia coli - Part 1: Most probable number technique using 4-methylumbelliferyl-beta-D-glucuronide (MUG)*

US ISO 11866-2, *Milk and milk products - Enumeration of presumptive Escherichia coli - Part 2: Colony-count technique at 44 Degrees C using membranes*

US ISO 16654, *Microbiology of food and animal feeding stuffs - Horizontal method for the detection of Escherichia coli O157*

US ISO 21527, Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of yeasts and moulds - Part 1, Colony count technique in products with water activity greater than 0.95

US ISO 21528-1, *Microbiology of the food chain - Horizontal method for the detection and enumeration of Enterobacteriaceae - Part 1: Detection of Enterobacteriaceae*

US ISO 6461, *Water quality - Detection and enumeration of the spores of sulfite- reducing anaerobes (clostridia) - Part 2: Method by membrane filtration*

US ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp*

US ISO 6888, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase — positive staphylococci (Staphylococcus aureus and other species)

US ISO 7251, *Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of presumptive Escherichia coli - Most probable number technique*

US ISO 9308-2, *Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 2: Most Probable Number method*

US ISO 7937, *Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of Clostridium perfringens - Colony-count technique*

US ISO 9308-2, *Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 2: Most Probable Number method*

ISO 16649-2

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
Food safety
quality of the food not to cause harm to the consumer. Conditions and practices that preserve the quality of food to prevent contamination and food-borne illnesses

3.2
micro-organisms
bacteria, viruses, yeasts, moulds, algae, parasitic protozoa, microscopic parasitic helminths

3.3
food safety criterion
a criterion defining the acceptability of a product or a batch of foodstuff applicable to products placed on the market

3.4
process hygiene criterion
a criterion indicating the acceptable functioning of the production process. Such a criterion is not applicable to products placed on the market. It sets an indicative contamination value above which corrective actions are required in order to maintain the hygiene of the process in compliance with food law

3.5
compliance with microbiological criteria
obtaining satisfactory or acceptable results set in this standard when testing against the values set for the criteria through the taking of samples, the conduct of analyses and the implementation of corrective action, in accordance with food law and the instructions given by the competent authority.

3.6
lot
is a quantity of food which is prepared or packed under essentially the same conditions, usually from a particular preparation or packing unit or during a particular time ordinarily not exceeding 24 h

3.7
batch
is a group or set of identifiable products obtained from a given process under practically identical circumstances and produced in a given place within one defined production period

3.8
microbiological criterion
a criterion defining the acceptability of a product, a batch of foodstuffs or a process, based on the absence, presence or number of micro-organisms, and/or on the quantity of their toxins/metabolites, per unit(s) of mass, volume, area or batch

3.9
defect sample
sample unit that gives a microbiological criterion value higher than the value of "M".

3.10
defective sample unit
is a unit in which a micro-organism is detected in a sample unit of a food at a level greater than m

3.11
n
is the minimum number of sample units which must be taken from a lot of food

3.12
m
is the acceptable microbiological level in a sample unit. Sampling plans in which m=0 and c=0 are equivalent to ‘absent’ or ‘not detected’ reporting for the stated analytical unit size. In most cases this is 25 g (e.g. not detected in 25 g)

3.13
c
is the maximum allowable number of defective sample. This is the number of sample units, which may exceed the microbiological limit specified by ‘m’. These are considered marginal results, but are acceptable providing they do not exceed the limit specified by "M"

3.14
M
is the level which when exceeded in one or more samples would cause the lot to be rejected

3.15
shelf-life
means either the period corresponding to the period preceding the ''use by'' or the minimum durability date

3.16
ready-to-eat food
is food intended by the producer or the manufacturer for direct human consumption without the need for cooking or further processing effective to eliminate or reduce to an acceptable level, micro-organisms of concern

3.17
physical hazards
are any extraneous object or foreign matter in a food item which may cause illness or injury to a person consuming the product. These foreign objects include, but are not limited to bone or bone chips, metal flakes or fragments, injection needles, pieces of product packaging, stones, glass or wood fragments, insects or other filth, personal items, or any other foreign material not normally found in food products

3.18
chemical hazards
are risks to food safety caused by contamination of food by chemical substances and include allergens antibiotic residues, unpermitted chemical preservatives, cleaners and sanitizers, detergents, unpermitted food additives, lubricants, mycotoxins, pesticides, toxic metals such as lead and mercury and process contaminants such as acryl amides

3.19
commercial sterility
the absence of microorganisms capable of growing in the food at normal non-refrigerated conditions at which the food is likely to be held during manufacture, distribution and storage

3.20
biological hazards
are hazards caused by bacteria, viruses or parasites that are present in air, food, water, soil, animals and humans

3.21
marginally acceptable
sample units have a microbial count higher than ''m'' but not more than ''M''.

3.22
food business operators (FBOs)
participants in the food chain with a primary role and responsibility for managing the food safety of their products and for complying with requirements relating to those aspects of food under their control.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

4 General requirements

4.1 Food business operators shall ensure that

a) Foodstuffs comply with the relevant microbiological criteria set out in this standard at each stage of food production, processing and distribution, including retail and take measures, as part of their procedures based on HACCP principles together with the implementation of good hygiene practice

b) the supply, handling and processing of raw materials and foodstuffs under their control are carried out in such a way that the process hygiene criteria are met

c) the food safety criteria applicable throughout the shelf-life of the products can be met under reasonably foreseeable conditions of distribution, storage and use

4.2 All foods and food ingredients shall be managed and handled in such a manner to ensure that what is distributed and offered for sale is safe for the consumer and free from adulteration.

4.3 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Food and Drugs Act, Public Health Act, ISO 22000.

4.4 All food shall be free from off flavours, off colours characteric of the product.

4.5 All food shall be free from insect infestation, Insect fragments, rodent contamination and other extraneous matter.

4.6 Foodstuffs shall not contain micro-organisms or their toxins or metabolites in quantities that present an unacceptable risk for human health.

4.7 All ingredients used shall be food grade and fit for human consumption.

4.8 Food business operators shall ensure that food which, is placed on the market or is likely to be placed on the market shall be adequately labelled or identified to facilitate its traceability and recall, through relevant documentation, information or labelling.

4.9 Food contact materials shall be food grade.

5 Criteria of technical conformity

Samples are considered unacceptable in the following cases:

5.1. When the microbiological criterion value exceeds 'M' in one or more sample units 'n'.

5.2. If the number of marginally acceptable samples is higher than c value set in the sampling plan.

6 Hygiene

Products covered by this standard shall be produced, processed, handled and stored in accordance with US 28 EAS 39.

7 Food additives

The products covered by this standard shall comply with the requirements of US 45.

8 Contaminants

8.1 The products covered by this standard shall comply with the relevant provisions of US 738.

8.2 The products covered by this standard shall comply with the maximum residue limits specified in CAC/MRL 2

8.3 The products shall comply with limits for veterinary drug residues and pesticide residues established by the Codex Alimentarius Commission

9 Microbiological requirements

9.1 All necessary measures required for maintaining a hygienic environment throughout the food chain (production, handling, and marketing) shall be established to ensure provision of safe food for human consumption.

9.2 Microbiological limits

All food categories shall comply with the relevant microbiological criterion as specified in the tables below, unless otherwise specified in a product standard. A lot of food fails to comply with the standard if the number of defective sample units is greater than c or the level of a micro-organism in a food in any one of the sample units is more than M. Establishment of microbiological criterion does not necessarily mean that every lot of product must be tested

9.2.1 Milk and Dairy products

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	c	m	M	
All cheese	Salmonella/25g	20	0	0	–	AOAC 967.26
	L.monocytogenes/25 g (supporting growth)	5	0	0	–	ISO 11290-1
	Staphylococcus aureus	5	1	10^2	10^3	ISO 6888-1
	Escherichia coli	5	0	0	–	ISO 9308-1
Fresh cheese	S. aureus(cougulase positive)/g	5	1	10	10^2	ISO 6888-1
Raw milk cheese	S. aureus(cougulase positive)/g	5	1	10^3	10^4	ISO 6888-1
Cheese from mildly heated milk or ripened	S. aureus(cougulase positive)/g	5	1	10^3	10^4	ISO 6888-1
Cheese made from pasteurized milk	S. aureus(cougulase positive)/g	5	1	10	10^2	ISO 6888-1
	Escherichia coli/g	5	3	10	10^2	ISO 9308-1
	Salmonella/25g	10	0	0	–	AOAC 967.26

9.2.2 Meat, Poultry and its Products

Food category	Micro-organism	Sampling plan		Limits		Analytical reference method
		n	c	m	M	
Beef trimmings used in ground beef	Escherichia coli/g	30	0	0	–	ISO 16649-2
	Salmonella/g	5	0	0	0	AOAC 967.26

	Salmonella/25g	5	0	0	0	AOAC 967.26
	Staphylococcus aureus	5	2	10^2	10^3	ISO 6888-1
Raw minced/pieces meat (chilled/ frozen) with soy or marinated (e.g. kubba; meat balls, burgers)	Aerobic plate count	5	2	$5x10^5$	$5x10^6$	ISO 4833
	Enterobacteriaceae	5	2	10^2	10^3	ISO 21528
	Salmonella	5	0	0	–	AOAC 967.26
	Escherichia coli	5	0	0	–	ISO 16649-2
	Staphylococcus aureus	5	2	10^2	10^3	ISO 6888-1
	Listeria monocytogenes	5	0	0	–	ISO 11290-1
Cured and/or smoked meat; mortadella; luncheon meat, basterma	Aerobic plate count	5	3	$5x10^5$	$5x10^6$	ISO 4833
	Salmonella	10	0	0	–	AOAC 967.26
	Escherichia coli	5	0	0	–	ISO 16649-2
	Listeria monocytogenes	5	0	0	–	ISO 11290-1
	Staphylococcus aureus	5	2	$5x10^2$	$5x10^3$	ISO 6888-1
Cured and/or smoked poultry meat; mortadella, frankfurters, turkey, smoked turkey breast	Aerobic plate count	5	3	10^4	10^5	ISO 4833
	Salmonella	10	0	0	–	AOAC 967.26
	Listeria monocytogenes	5	0	0	–	ISO 11290-1
Cooked uncured meat	Clostridium perfringens/25g	5	1	10^2	10^3	ISO 7937
	Salmonella/25 g	10	0	0	–	ISO 6579
	Listeria monocytogenes	5	0	10^2	–	ISO 11290-1
Fermented meats	Salmonella/25 g	10	0	0	–	AOAC 967.26
Cooked poultry products frozen to be reheated before eating (e.g. prepared frozen meals; chicken burgers; chicken/ turkey rolls, chicken nuggets, others breaded poultry products	s.aureaus (coagulase positive)/g	5	1	10^2	10^3	ISO 6888-1
	L. monocytogenes	5	0	10^2	–	ISO 11290-1
	Salmonella/25 g	10	0	0	–	AOAC 967.26
	Escherichia coli	5	0	0	–	ISO 16649-2
Cooked uncured poultry	Clostridium perfringens/25g	5	1	10^2	10^3	ISO 7937
	Escherichia coli	5	0	0	–	ISO 16649-2
	L. monocytogenes	5	0	10^2	–	ISO 11290-1
	s.aureaus (coagulase positive)/g	5	1	10^2	10^3	ISO 6888-1
	Salmonella/25 g	10	0	0	–	AOAC 967.26
Dried poultry products	Salmonella/25 g	10	0	0	–	AOAC 967.26
Meat & poultry soup (concentrated, powder)	Aerobic plate count	5	1	10^4	10^5	ISO 4833
	Enterobacteriaceae	5	1	10	10^2	ISO 21528
	Salmonella	10	0	0	–	ISO 6579

Dehydrated meat or meat components; protein concentrates from meat	Salmonella	10	0	0	–	AOAC 967.26
	Listeria Monocytogenes	5	0	0	–	ISO 11290-1
	Staphylococcus aureus	5	3	10^2	10^3	ISO 6888-1
Vacuum packed-semi-preserved but perishable meat and poultry product	Aerobic plate count	5	2	10^6	10^7	ISO 4833
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	2	10^2	10^3	ISO 6888-1

9.2.3 Fish and seafood/ shell fish and their products

Food category	**Microorganism**	**Sampling plan**		**Limits**		**Analytical reference method**
		n	c	m	M	
Fresh crustaceans Raw (chilled/ frozen) crustaceans (e.g. shrimp, prawns, lobsters and crab)	Aerobic plate count	5	2	$5x10^5$	10^7	ISO 4833
	Salmonella/25 g	10	0	0	-	AOAC 967.26
	vibro cholerae	10	0	0	-	AOAC 988.20
	L. monocytogenes/25 g (supporting growth)	5	0	0	-	ISO 11290-1
	Escherichia coli	5	3	10	$5x10^2$	ISO 16649
	Staphylococcus aureus	5	2	10^2	10^3	ISO 6888-1
Live (raw) mollusks such as bivalves (oysters,clams,mussels,etc.),cephalopods (squids, cuttlefish, octopus, etc.),gastropods (snails, etc.)	Salmonella/25 g	10	0	0	-	AOAC 967.26
	Escherichia coli	5	1	$2.3x10^2$	$7x10^2$	ISO 16649
	vibro cholerea	10	1	10^2	10^3	AOAC 988.20
Cooked (chilled/ frozen) crustaceans, molluscans Shucked, cooked bivalves	Aerobic plate count	5	2	10^5	10^6	ISO 4833
	Salmonella/25 g	5	0	0	-	AOAC 967.26
	Escherichia coli	5	1	10	$5x10^2$	ISO 16649
	Listeria monocytogenes	5	0	0	-	ISO 11290-1
	Staphylococcus aureus	5	1	10^2	10^3	ISO 6888-1
Lightly preserved fish Pasteurised fish	L. monocytogenes/g (not supporting growth)	5	0	10^2	-	ISO 11290-1

9.2.4 Egg and Egg Products

Food category	**Micro-organism**	**Sampling plan**		**Limits**		**Test method**
		n	c	m	M	
Any egg product intended for special dietary purposes (infants, aged, relief foods, etc.)	Aerobic plate count	5	1	$5x10^4$	10^6	ISO 4833
	Salmonella	30	0	0	–	AOAC 967.26
	Enterobacteriaceae	5	2	10	10^2	ISO 21528-2
Pudding with egg (powders)	Aerobic plate count	5	2	10^4	10^5	ISO 4833

Egg mix dehydrated Dried cake mixes with high egg content	Salmonella	10	0	0	–	AOAC 967.26
	Escherichia coli	5	0	0	–	ISO 16649
	Listeria monocytogenes	5	0	0	–	ISO 11290-1
	Staphylococcus aureus	5	1	10	10^3	ISO 6888-1

9.2.5 Fats and Oils (Oil and Fats based foods)

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	C	m	M	
Mayonnaise-based salads	*S. aureus (coagulase positive) /g*	5	1	10^2	10^3	ISO 6888-1
	Salmonella/25 g	10	0	0	–	AOAC 967.26
	L. monocytogenes/25 g (supporting growth)	5	0	0	–	ISO 11290-1
Pan Gliss vegetable cooking oil	Aerobic plate count	5	2	10^4	10^5	ISO 4833
	Moulds	5	2	$5x10^1$	$5x10^2$	ISO 21527-1
	Enterobacteriaceae	5	2	10	10^2	ISO 21528-2
	Salmonella	10	0	0	–	AOAC 967.26

9.2.6 Tomato Concentrates, Sauces, dry soups, Vinegar, Spices and Herbs

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	c	n	M	
Mustard, salad sauce and other sauces	Aerobic plate count	5	2	10^3	10^4	ISO 4833
	Yeasts and moulds	5	2	20	10^2	ISO 21527-1
	Enterobacteriaceae	5	1	10	10^2	ISO 21528-2
	Escherichia coli	5	2	2	10	ISO 16649
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	10	10^2	ISO 6888
Dry spice blends, Dry soups, gravy and vegetable seasoning	*Salmonella*/25 g	10	0	0	–	AOAC 967.26
	Aerobic plate count	5	2	10^3	10^4	ISO 4833
	Anerobic plate count	5	2	10^2	10^3	ISO 4833
	Yeasts and moulds	5	2	0	10^2	ISO 21527-1
	Coliforms	5	1	10^2	10^4	ISO 9308

9.2.7 Fruit, Vegetables and their products

Food category	Microorganism	Sampling plan		Limits		Analytical reference method
		n	c	m	M	
Cooked vegetables	Aerobic colony count/g	5	1	10^4	10^5	ISO 4833
	Escherichia coli/g	5	1	10^1	10^2	ISO 16649
	L. monocytogenes/25 g (supporting growth)	5	0	0	–	ISO 11290-1
Frozen vegetables and frozen fruits, pH equal or higher than 4.5	*Escherichia coli*	5	2	10^2	10^3	ISO 16649
Frozen vegetables and frozen fruits, pH less than 4.5	pH measured at the time of sampling	pH values shall be less than 4.5 in all tested samples				
Dried fruits; dates (including date paste), figs, apricot, grape (raisons), etc)	Yeasts	5	2	10	10^2	ISO 21527-1
	Moulds	5	2	10^2	10^3	ISO 21527-1
	Escherichia coli	5	2	0	10	ISO 16649
	Salmonella	5	0	0	–	AOAC 967.26
Vegetable soup (powder) no standard	Aerobic plate count	5	1	10^4	10^5	ISO 4833
	Yeasts and Moulds	5	1	10^2	10^3	ISO 21527-1
	Escherichia coli	5	0	0	–	ISO 16649
	Salmonella	5	0	0	–	AOAC 967.26
Sprouted seeds (sprouts)	*Escherichia coli*/g O157:H7/25 g	30	0	0	–	ISO 16654
	Salmonella/25 *g*	20	0	0	–	AOAC 967.26

9.2.8 Canned Foods and Ingredients for Canning

Commercially sterilized canned foods shall pass sterility test described in the relevant Codex or Uganda standard for Canned Foods, in accordance with Annex A

9.2.9 Cereals, Legumes, Nuts, Oil seeds, and their Products

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	C	m	M	
Pizza, meat pies, frozen dough with or without filling	*Salmonella*	10	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	10^2	10^4	ISO 6888
Raw ready-to-cook frozen and refrigerated dough products	Aerobic plate count	5	2	10^4	10^5	
	Enterobacteriaceae	5	1	10^2	10^3	ISO 21528-2
Raw ready-to-eat frozen and	*Escherichia coli*	5	0	0	–	ISO 16649

refrigerated dough products	*Salmonella*	20	0	0	–	AOAC 967.26
	*Listeria monocytogenes**	5	0	0	–	
	Staphylococcus aureus	5	1	10	10^2	ISO 6888
Puffed, flaked cereal Products	Aerobic plate count	5	1	10^4	10^5	ISO 4833
	Moulds	5	1	10^2	10^4	ISO 21527-1
	Salmonella	5	0	0	–	AOAC 967.26
Malt, Malt derivatives	Aerobic plate count	5	1	$5x10^4$	10^5	ISO 4833
	Yeasts and moulds	5	1	10^3	$5x10^3$	ISO 21527-1
	Salmonella	5	0	0	–	AOAC 967.26
bean based products	*Salmonella*/25 g	5	0	0	–	AOAC 967.26
High moisture derivatives of dried legumes and bean-based products	*Salmonella*/25 g	20	0	0	–	AOAC 967.26

9.2.11 Cocoa, chocolate, Sweets, confectionery and their Ingredients

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	c	m	M	
Dehydrated desserts, (bonbons, caramels and other similar products)	Aerobic plate count	5	2	10^4	10^6	ISO 4833
	Escherichia coli	5	0	0	–	ISO 16649
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	2	10	10^3	ISO 6888
Hard & soft candy	Aerobic plate count	5	2	0	$5x10^3$	ISO 4833
	Yeasts and moulds	5	0	0	10^2	ISO 21527-1
	Enterobacteriaceae	5	0	0	–	ISO 21528-1
	Salmonella	5	0	0	–	AOAC 967.26
Arabic sweets	Coliforms	5	0	0	–	ISO 9308
	Salmonella	5	0	0	–	AOAC 967.26
	Escherichia coli O157	5	0	0	–	ISO 16654
	*Listeria monocytogenes**	5	0	0	–	ISO 11290-1
	Staphylococcus aureus	5	0	0	–	ISO 6888

9.2.14 Combination of foods Ready to Eat

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	c	m	M	
Sandwiches and filled rolls with salad	*Escherichia coli*	5	1	20	10^2	ISO 9308-1
	Salmonella	5	0	0	–	AOAC 967.26

	*Listeria monocytogenes**	5	1	20	10^2	ISO 11290-1
Sandwiches and filled rolls without salad	Aerobic plate count **	5	1	10^6	10^7	ISO 4833
	Enterobacteriaceae	5	1	10^2	10^4	ISO 21528-2
	Escherichia coli	5	1	20	10^2	ISO 9308-1
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	20	10^2	ISO 6888-1
Coleslaw (cabbage)	Aerobic plate count	5	1	10^5	10^6	ISO 4833
	Escherichia coli	5	2	10	10^2	ISO 9308-1
	Listeria monocytogenes	5	0	0	–	ISO 11290-1
	Staphylococcus aureus	5	1	10^2	10^4	ISO 6888-1
Sandwiches and filled rolls with cheese- Ready to eat meals (pasta/pizza, others)	Enterobacteriaceae	5	1	10^2	10^4	ISO 21528-2
	Escherichia coli	5	1	20	10^2	ISO 9308-1
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	20	10^2	ISO 6888-1
Rice	Aerobic plate count	5	1	10^5	10^6	ISO 4833
	Enterobacteriaceae	5	1	10^2	10^4	ISO 21528-2
	Escherichia coli	5	1	20	10^2	ISO 9308-1
	Salmonella	5	0	00	–	ISO 6579
	Staphylococcus aureus	5	1	20	10^2	ISO 6888-1
Bhaji, Falafel Soup (all kinds), Samosa, Mashed potato, Desserts (tarts, flans, and sweet pies) Spring rolls- Trifle Homous, Tzatziki, and other dips.	Aerobic plate count	5	1	10^5	10^6	ISO 4833
	Enterobacteriaceae	5	1	10^2	10^4	ISO 21528-2
	Escherichia coli	5	1	20	10^2	ISO 9308-1
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	20	10^2	ISO 6888-1
Jelly	Aerobic plate count	5	2	10^2	10^3	ISO 4833
	Enterobacteriaceae	5	0	0	–	ISO 21528-2
	Escherichia coli	5	0	0	–	ISO 9308-1
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	20	10^2	ISO 6888-1
	Sulphite-reducing anaerobes	5	1	0	10	ISO 6461

9.2.15 Infants, Children and Certain Categories of Dietetic Foods

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	c	m	M	
Biscuits (plain, dried)	Enterobacteriaceae	5	1	0	10^2	ISO 21528-2
	Yeasts and moulds	5	1	50	10^2	ISO 21527-1
	Salmonella	5	0	0	–	AOAC 967.26
	Escherichia coli O157	5	0	0	–	ISO 16654

	Staphylococcus aureus	5	1	10	10^2	ISO 6888-1
Shelf–stable dried biscuits coated or filled with chocolate or others	Enterobacteriaceae	5	1	10	10^2	ISO 21528-2
	Salmonella	30	0	0	–	AOAC 967.26
	Escherichia coli O157	5	0	0	–	ISO 16654
	Staphylococcus aureus	5	1	10	10^2	ISO 6888-1
Dried and instant products requiring reconstitution	Aerobic plate count	5	1	10^4	10^5	ISO 4833
	Enterobacteriaceae	10	0	0	–	ISO 21528-2
	Salmonella	60	0	0	–	AOAC 967.26
	Escherichia coli	5	0	0	–	ISO 16654
	Staphylococcus aureus	5	0	0	–	ISO 6888-1
Cereal based foods for infant	Aerobic plate count*	5	2	10^3	10^4	ISO 4833
	Salmonella	10	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	10	10^2	ISO 6888-1
	Bacillus cereus	5	1	10^2	10^3	ISO 7932
	Listeria monocytogenes	5	0	0	–	ISO 11290-1
Powdered infant formula, including those with lactic acid- producing cultures	Enterobacteriaceae	10	2	0	10^2	ISO 21528-2
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	10	10^2	ISO 6888-1
	Listeria monocytogenes	5	0	0	–	ISO 11290-1
Dried products requiring heating to boiling before consumption	Aerobic plate count	5	3	10^5	10^6	ISO 4833
	Enterobacteriaceae	10	2	0	10^2	ISO 21528-2
	Escherichia coli	5	0	0	–	ISO 9308-1
	Salmonella	15	0	0	–	AOAC 967.26
Thermally processed products in sealed containers	Shall meet the microbiological requirements for canned foods specified in this standard (8.2.8)					
Dietetic foods to be eaten by high risk category of consumers (according to the type of the product)	Aerobic plate count	5	1	10^3	10^4	ISO 4833
	Escherichia coli	5	2	0	10	ISO 9308-1
	Salmonella	60	0	0	–	AOAC 967.26
	Listeria monocytogenes	5	0	0	–	ISO 11290-1
	Staphylococcus aureus	10	1	10	10^2	ISO 6888-1
Body building foods	Aerobic plate count	5	0	0	10^4	ISO 4833
	Yeasts and moulds	5	0	0	$3x10^2$	ISO 21527-1
	Coliforms	5	0	0	10	ISO 9308-1
	Escherichia coli	5	0	0	–	ISO 9308-1
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	0	0	–	ISO 6888-1

9.2.16 Ingredients for Food Industries

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	c	m	M	
Enzymes	*Escherichia coli*	5	2	0	10	ISO 9308-1
	Salmonella	10	0	0	–	AOAC 967.26
Dyes (food colours)	Aerobic plate count	5	2	10^4	10^6	ISO 4833
	Salmonella	10	0	0	–	ISO 6579
Gums	Aerobic plate count	5	2	10^4	10^6	ISO 4833
	Enterobacteriaceae	5	2	10	10^3	ISO 21528-2
Eggs products	Aerobic plate count	5	2	10^4	10^6	ISO 4833
	Salmonella	10	0	0	–	AOAC 967.26
	Enterobacteriaceae	5	2	10	10^2	ISO 21528-2
Yeasts	Spores of rope-forming bacteria	5	1	10^2	10^3	*ISO* 7932
	Escherichia coli	5	2	0	10	ISO 9308-1
	Salmonella	20	0	0	–	AOAC 967.26
Gelatine	Aerobic plate count	5	3	$5x10^3$	10^5	ISO 4833
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	10^2	10^3	ISO 6888-1
	Clostridium perfringens	5	1	10^2	10^4	**ISO 7937**

9.2.17 Miscellaneous Foods

Food category	Micro-organism	Sampling plan		Limits		Test method
		n	c	m	M	
Tofu (not UHT)	*Escherichia coli*	5	0	0	–	ISO 9308-1
	Staphylococcus aureus	5	2	10^2	10^3	ISO 6888-1
Sesame seed products (Tahini, Halwa)	Moulds	5	1	10^2	10^3	ISO 21527-1
	Escherichia coli	5	0	0	–	ISO 9308-1
	Salmonella	5	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	10	10^2	ISO 6888-1
Cultured Seeds and Grains (bean sprouts, alfalfa, etc)	*Escherichia coli*	5	0	0	–	ISO 9308-1
	Salmonella	5	0	0	–	AOAC 967.26
Edible essential water others)	Aerobic plate count	5	2	10	10^2	ISO 4833
	Yeasts	5	2	0	20	ISO 21527-1
	Candida	5	0	0	–	*ISO* 20743

	Coliforms	5	2		10	ISO 9308-1
	Escherichia coli	5	0	0	–	ISO 9308-1
	Pseudomonas aeruginosa	5	0	0	–	ISO 16266
Nutritious powder	Aerobic plate count	5	2	10^3	10^4	ISO 4833
	Coliforms	5	1	0	10	ISO 9308-1
	Salmonella	15	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	0	0	–	ISO 6888-1
Cream caramel powder	Aerobic plate count	5	2	10^4	10^6	ISO 4833
	Escherichia coli	5	2	0	10	ISO 9308-1
	Salmonella	10	0	0	–	AOAC 967.26
	Staphylococcus aureus	5	1	10	10^3	ISO 6888-1

10. Packaging

10.1 The products shall be packaged in food grade packaging that will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

10.2 The packaging materials used shall conform to the requirements given in US 1659.

11. Weights and measures

The packages shall comply with the Weights and measures regulations of Uganda

12. Labelling

12.1 Each product shall be labelled in accordance with the requirements specified in US EAS 38

12.2 Nutrition labelling, claims on food and use of nutritional and health claims shall be done in accordance with EAS 803, EAS 804 and EAS 805 respectively

13. Sampling of food for microbial analysis

13.1 Sampling shall be done in accordance with the requirements in US CAC/GL 50. Samples shall be taken from processing, storage areas, equipment used in food production or at point of sale, when such sampling is necessary for ensuring that the criteria are met. In that sampling the ISO 18593 shall be used as a reference method.

13.2 The approved Uganda test methods for food microbiology shall be used to determine whether the food has exceeded the maximum permissible levels of the food borne micro-organisms in relation to that food.

13.3 In the event of the use of alternative analytical methods, such methods shall be validated against the reference method, and if a proprietary method, certified by a third party in accordance with the protocol set out in -ISO 16140 or other internationally accepted similar protocols, is used.

Annex A

Item	Micro-organism	Sampling plan		Limit per ml or gram	
		n	c	m	M
First Action	Must be the number of cans tested 24 cans and the absence of defects; lock; welding or swelling during incubation indicates the efficiency of the commercial sterilization process and the safety of batch production.	24	–	0	–
Second Action	When there are 1-2 defective cans or swelling should; therefore larger numbers of cans should be sorted from the batch. In case of presence of more than 1 % of defective cans; reject the batch, but the presence of 1 % or less; the third action is taken.	–	1 %	0	–
Third Action	Examine 24 cans during the incubation period for not less than 10 days in the incubator at a temperature of 30-37 °C for non-acid canned, or in the incubator at 25 °C for acidic canned. Production is not identical in the case of a can or more defective or welding or swelling after incubation.	24	0	0	–
Fourth Action	Being in the absence of any swelling or defects lock and welding after the third action. Open and lifting the welding and examine 10 cans. Accept the batch in the absence of any defects in the weld or lock.	10	0	0	–

Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

The Standards Act governs the use of the UNBS Certification Mark, and the Regulations made thereunder. This mark can be used only by those licensed under the certification mark scheme operated by the Uganda National Bureau of Standards and in conjunction with the relevant Uganda Standard. The presence of this mark on a product or in relation to a product is an assurance that the goods comply with the requirements of that standard under a system of supervision, control and testing in accordance with the certification mark scheme of the Uganda National Bureau of Standards. UNBS marked products are continually checked by UNBS for conformity to that standard.

Further particulars of the terms and conditions of licensing may be obtained from the Director, Uganda National Bureau of Standards.

Bibliography

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ICS 67.020

Price based on nn pages